

April 23, 1935.

L. BERTELE

1,998,704

PHOTOGRAPHIC OBJECTIVE

Filed Aug. 31, 1932

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Fig. 1

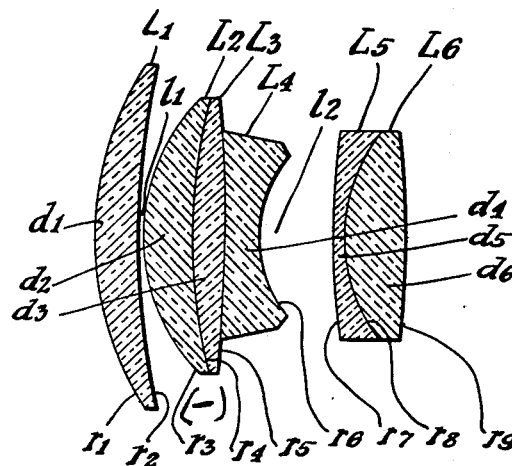
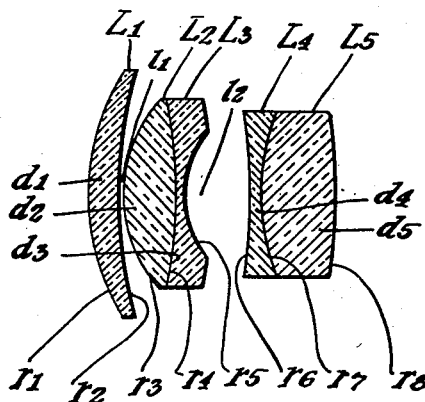


Fig. 2



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PHOTOGRAPHIC OBJECTIVE

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Application August 31, 1932, Serial No. 631,222
In Germany September 1, 1931

1 Claim. (Cl. 88—57)

This invention relates to improvements in ob-
jective systems as they are for instance described
in the application Serial No. 470,207, in which
the system in its application to a large field of
5 vision shows disturbing comatic phenomena.
Particularly the upper comatic bunches, show a
strongly positive supercorrection or rectification.
Experiments have shown, that these phenomena
can be remedied by the introduction of a col-
lecting cemented face into the last member of
10 the sytem, if with a difference in the refractory
members of more than 0,1, the curvature of the
cemented face is so arranged as to present its
hollowed side to the picture.

15 It is the object of my invention to provide an
objective system consisting of two collecting
members on air and in which these members
surround another meniscus-shaped system mem-
ber, and the first collecting system element in
20 connection with the convex outer face of the sur-
rounded system element facing the first system
element, has a focal distance measured in the
medium glass, which is smaller than the total
focal distance of the objective, with a collecting
25 cement face in the last member of the objective
system which has its hollow face turned towards
the picture.

These and other objects and advantages of my
invention will become more fully known as the
30 description thereof proceeds, and will then be
specifically defined in the appended claim.

In the accompanying drawing:

Fig. 1 illustrates diagrammatically one objec-
tive system arranged according to my invention.

35 Fig. 2 illustrates diagrammatically another ob-
jective system.

Example I

[1:2 f=100 mm.]

			n_D	v
$r_1 + 57,00$	d_1	8,0	1,6185	60,5
$r_2 + 146,30$	l_1	0,4		
$r_3 + 36,20$	d_2	10,0	1,6711	47,3
$r_4 + 110,00$	d_3	6,0	1,4645	65,7
$r_5 - 300,00$	d_4	6,8	1,6390	31,2
$r_6 + 23,70$	l_2	15,0		
$r_7 + 200,00$	d_5	2,0	1,5647	55,8
$r_8 + 30,70$	d_6	12,0	1,6711	47,3
$r_9 - 152,64$				

Example II

[1:2,8 f=100 mm.]

			n_D	v
$r_1 + 43,50$	d_1	7,00	1,6711	47,3
$r_2 + 94,88$	l_1	0,40		
$r_3 + 24,92$	d_2	10,60	1,5400	59,6
$r_4 - 162,90$	d_3	1,40	1,6398	34,6
$r_5 + 19,10$	l_2	13,20		
$r_6 - 242,84$	d_4	2,00	1,4645	65,7
$r_7 + 37,12$	d_5	15,10	1,6711	47,3
$r_8 - 138,30$				

It will be understood that I have disclosed the
preferred forms of my invention only as some
examples of the many possible ways to practical-
ly construct my objective systems and that I
may make such changes therein as come within
the scope of my invention without departure
from the spirit of my invention and the princi-
ples involved.

Having thus described my invention, what I
claim as new and desire to secure by Letters Pat-
ent is:

A photographic objective, consisting of three
air-spaced glass members, of which the first
glass member located opposite the object to be
photographed has a positive refractive power,
the second glass member located in the middle
of the objective has a strongly curved meniscus
shape, and the third glass member located oppo-
site the light-sensitive material has a positive
refractive power and consists of at least two
lenses, of which the lens facing the light-sensi-
tive material is a collecting one and the other
lens is a dispersing one and has a refractive in-
dex smaller than that of the collecting lens,
both lenses being cemented together in such a
way that the cement forms a part facing with
its hollow face the light-sensitive material.

LUDWIG BERTELE.